

Accelerator complex status

End week 34 (Sunday 23rd August 2015)

TI (Peter Sollander)

TI summary of the week:

<https://wikis.cern.ch/display/TIOP/2015/08/17/TI+summary+week+34,+2015>

Just one major event, a power cut Wednesday in point 8 lost 4 hours for the LHC.

LEIR (Michael Bodendorfer)

Due to an unsuccessful oven refill procedure in the GTS ion source, LEIR has not received meaningful lead ion beam intensities until Thursday late afternoon. The several day long time span required a new re-adjustment of the machine parameters in order to stack multiple multi-turn injection in LEIR.

Friday morning was mainly used by the Linac3 team to improve the ion beam intensity from the GTS ion source. From late morning until late afternoon, we managed to re-recuperate some of the LEIR intensity. But we are still troubled with a low injection efficiency. We don't know why the LEIR injection efficiency is so low, 0% to 60%, compared to the previous lead ion run in 2013, where it was between 50% to 70%.

We are working on multiple targets to solve the problem, currently focused on the orbit control. The LEIR orbit control is limited at this point because all orbit corrections done by YASP, except simple and small 3C and 4C bumps, kill the beam. In the coming days we will try to recover some of the lost beam time and investigate with the goal to regain orbit control in the LEIR machine to see whether the injection efficiency is low due to this issue.

Booster (Gian Piero Di Giovanni)

It was a good week for the PSB, despite few problem worth mentioning.

On Tuesday early morning (3H45) the synchro with the PS started to be problematic and after investigations by the OP crew on the two machines, the PiLLRF (H. Damerau) was called. He noted that this had been seen before, so he proposed to change the PS frequency by reducing it by 500Hz, and this brought everything back in line, although it has not yet been explained. The situation swapped back to the original of its own accord a couple of hours later. Because of this issue, we also realized that we were not able anymore to reliably read back at the PSB the frequency issued by the PS pentek. Since this is an important diagnostic tool for such problems, a lot of work was done by the Alan in conjunction with M. Arraut to fix it. It turned out that with the current hardware, we cannot read back the PS frequency in a PPM fashion, so for the time being (and until we find a better solution) we re-established the functionality in a not-PPM mode, which would allow us to diagnose similar problems in the future on a dedicated user at the time.

On Saturday early morning, we started losing 10%-20% of intensity in ring 1 for all users. The origin was tracked back to a faulty VME card which was promptly replaced by the PiLLRF (J. Bento/M. Jaussi) at around 3H in the morning.

During the week-end with had problems with some of the front-ends affecting the BPMs reading, mostly at extraction, but all the reboots worked. The experts have been informed and will look into it.

As usual a lot of MDs were carried over during the week.

PS (Gabriel Metral)

Début de semaine perturbée par un problème de synchronisation entre les machines PSB et PS.

La fréquence RF envoyée au PSB n'est plus mesurable en mode 'remote' (Diagnostic toujours pas dispo ce jour)

L'opération TOF a été pénalisée ce WE par les nombreux déclenchements du KFA4.

La machine PS doit recevoir les Ions Plomb ce Lundi. Les conditions 'vide' sont bonnes, le cycle a été préparé.

Faisceaux LHC, TOF, EAST et AD régulièrement servi aux utilisateurs. De plus, T9 a pu prendre le faisceau à plusieurs reprises alors qu'il n'était pas programmé initialement.

Jeudi, un câble d'alimentation du système d'accès de la zone TOF target et primaire a été endommagé. Après analyse, pour minimiser l'impact de cet incident, le changement de ces câbles aura lieu pendant l'arrêt technique.

SPS (Karel Cornelis)

For the SPS, the week was dominated by the repair of the vacuum leak in front of T6. On Monday pictures were made of the area with a remotely controlled camera and a radiation map could be established with the same device. This helped to prepare the intervention on the vacuum window and to localise a water leak on a connection to the TAX. After rehearsing and optimising the intervention on a mock up, the window was replaced on Tuesday. A leak test, however, showed that the intervention was unsuccessful. On Wednesday it was decided to give up the last 7meters of vacuum pipe by removing the connection to the rest of TT25 and installing the window at that place. This repair turned out to be successful and on Thursday evening the vacuum was re-established and the sector valves could be opened. When the water pressure was turned on again for the Tax cooling, a new water leak was discovered on a manifold but it could be repaired in extremis and the NA beam was back on Thursday evening. The TBIU is now working in a bad vacuum. A reserve should be ready for the YETS.

Alternative optics for TT2-TT10 were tested for the MTE beam. So far no big break through concerning injection losses.

Profiting from the absence of the FT beam, collimator studies took place using coasting beam at 55GeV and 270GeV (the intermittent kicks from MBB53490 are still present at 270GeV). Trains of 25nsec beam were provided to the LHC and at the end of the week also some 50nsec beam was provided.

ISOLDE (Eleftherios Fadakis)

A rather good week for HRS operation with excited users.

Important issues during the week:

GPS Frontend

Beginning of the week, during the intervention they understood where was the movement of the extraction electrode being lost. They need to replace two screws that connect the clutch system to the spindle which are currently insufficiently tight. The intervention to replace them with bigger ones, is scheduled for Tuesday 25th.

BE-CO issues

Sunday morning issue with InCa server. Users could not start or use any application. Restarting the server solved the issue. Reason for this under investigation. Monday 24th InCa updated our server to the latest version and asked us to inform them if we observe anything similar.

TE-EPC server buffer shortage

This issue has happened 3 times in the past, it was with PowPLC class. Previous times they could increase the buffer but they need to restart the FEC. This time we were taking protons and they could not guarantee that the power supplies would not go to 0. PowPLC class drives, among other devices, the target and line heating so I asked them not to restart it. M.Dudek said that on the 31st of August he will migrate the class to rda3 and this will solve the problem for good.

PreviousTicket: <https://issues.cern.ch/browse/APS-5078>

GPS

Awaiting FE intervention tomorrow.

HRS

Tuesday

Stable beam to users.

BE-BI changed the CCO scanner.

Wednesday

CB0 pump controller broke overnight, we could still keep the sector pumped using the neighbouring pumps.

RILIS set up with protons on 208Po to 202Po, also 192T. then Yield checks on 200Po and 192Ti and ISOLTRAP taking Po over night

Thursday

CB0 pump controller exchanged. Some issues with target production which was overcome with heating the target and doing some beam setting up.

Friday

ISOLTRAP working with 197Po.

Saturday

ISOLTRAP continues with 197Po

Sunday

ISOLTRAP working with 197Po. In the morning an InCa server problem stop all our applications. I was called and after notifying the InCa people we rebooted the server and solved the problem. In the process inca support could log enough data to allow them to further investigate why this happened.

In the afternoon they could not cycle to 196Po. Restarting the HRS FEC (197-thrsmag) solved the problem. They needed to do that during the night one more time.

Monday

InCa calls to ask us to update their server since it is one month old. We have lost protons since 9:50 due to PSB issues so timing is perfect to do that.

ISOLTRAP awaits protons to go to 195Po.